



Home and Studio Under One Roof

A steel skin, exposed framing, and a central atrium distinguish this industrial-strength version of a classic dog-run house

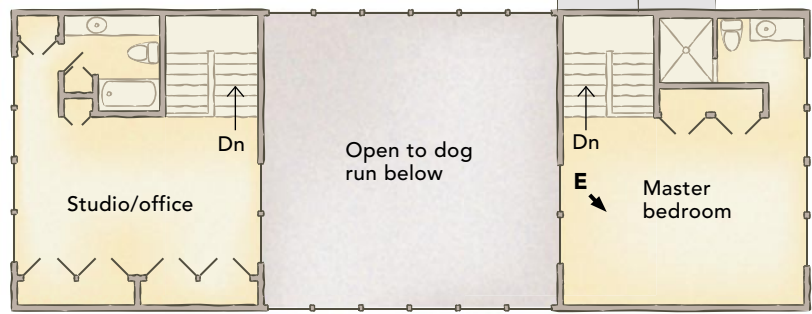
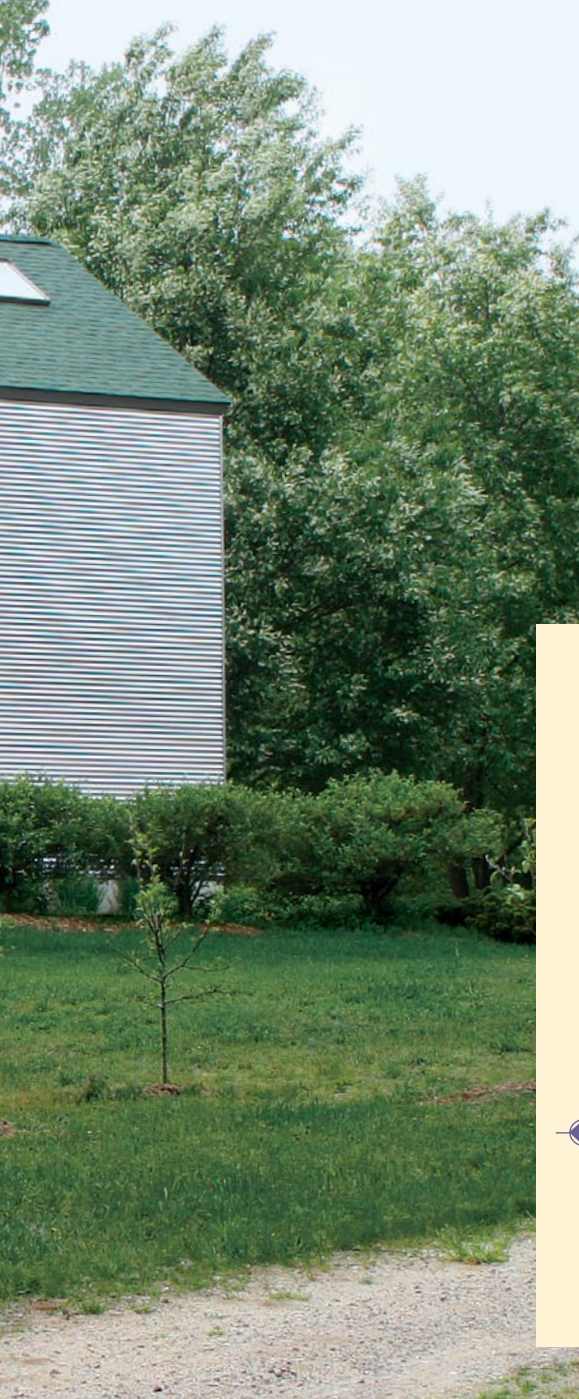
BY BEDE VAN DYKE

After living in and remodeling my previous house (*FHB* #137, pp. 116-121), I learned several things. First, I needed to separate my office and studio space from my living area. Second, I wanted to build with structural insulated panels (SIPs) again because I liked their energy efficiency and their ease of construction. Finally, I liked the honest feel of exposed structure and systems that I'd used in the

studio along with the same down-home rural feel of galvanized-steel siding.

An old design reborn

Armed with these criteria, I started working on a design for a new house. The earliest plans called for a greenhouse-like south elevation with a layer of glazing between the greenhouse portion and the living quarters. Seeking to economize and simplify construction, I absorbed the greenhouse into the center of the house, which gave me a narrower footprint while also allowing me to separate my living quarters from my office. This strategy let the house assume a simple barnlike form.



Second floor



A DOG RUN CONNECTS SEPARATE SPACES

Dog-run or dog-trot homes were common in the Southern United States over the past two centuries. The design incorporated an open area between the kitchen and the main living space; there, dogs and their owners could enjoy the breezes that funneled through. In this modern version, the dog run separates two distinct houses (photo left, taken at A on floor plan). Although unheated, the dog run is closed in with glazing to temper the space during the winter; large sliding doors open to promote ventilation in the summer.



Traditional dog run, circa 1768

Photos taken at lettered positions.

SPECS

Bedrooms: 3 (including studio)

Cost: \$130 per sq. ft.

Completed: 2003

Bathrooms: 3½

Location: Holland, Mich.

Size: 3000 sq. ft. (including dog run)

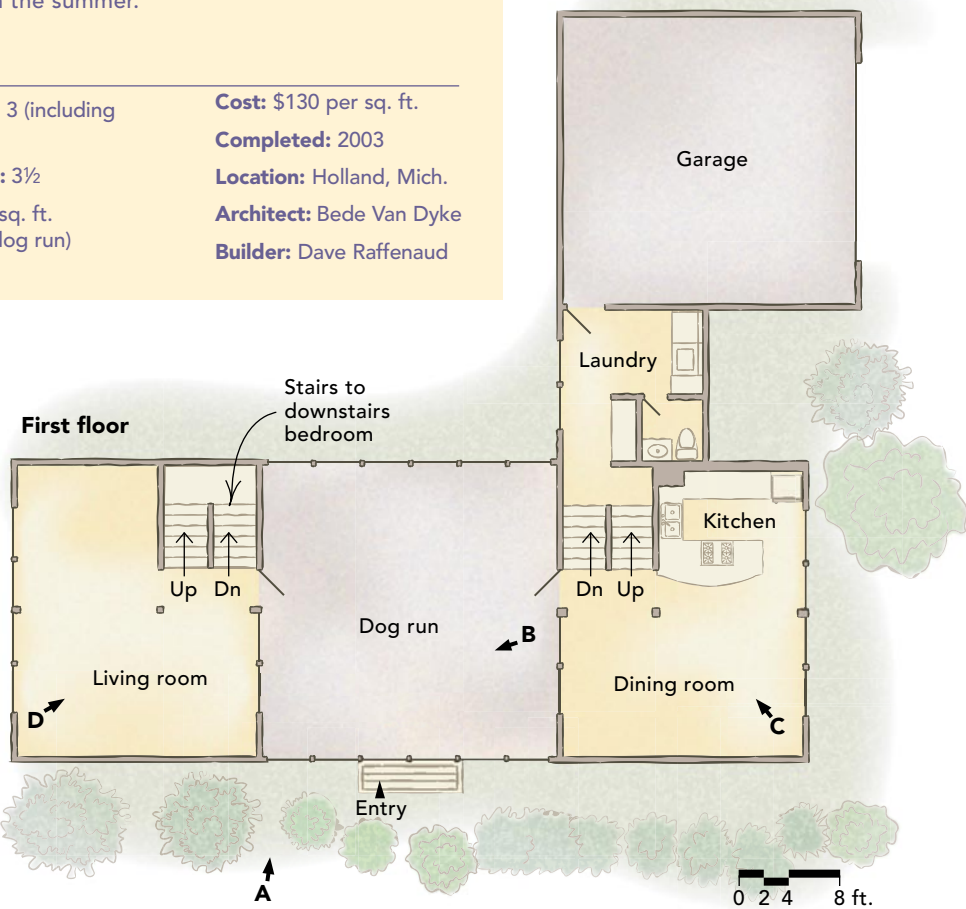
Architect: Bede Van Dyke

Builder: Dave Raffenaud

In the final version, two separate volumes, distinct houses if you will, sit under a single gable roof with an open space in the middle that at once separates and unifies the two sides (photo above). I call the house a dog-run or dog-trot house after those early Southern homes that split the kitchen from the main living quarters with a central open area (drawing right).

Part boxcar, part barn

In the end, the house took on the scale of a barn. The honest philosophy of exposing structural elements and mechanical systems further enhances this rural flavor. On the inside, I painted the standard factory-made



Fun center of the house. The open dog run with nearly constant breezes and soft light is the home's social gathering place. Good acoustics make it a great place to play music. Oversize plywood Adirondack chairs are the author's design. Photo taken at B on floor plan.



roof trusses white and left them exposed. Ductwork for the HVAC system runs through the trusses, again left visible to show off its simple mechanical beauty.

Knowing the floor joists would be exposed, I specified #1 grade Douglas fir to minimize knots and imperfections. Joist hangers add a mechanical rhythm to the whole assembly. In areas where mechanicals had to be run between joists, I made some simple grilles that tack into place to hide the mess.

Four-in.-thick SIPs for the walls are covered with drywall on the inside. On the roof, 6-in.-thick SIPs have ½-in. clear-select rough-sawn fir plywood on the inside. Left natural, the plywood serves as the interior ceiling finish above the trusses. The walls of each portion of the house facing the unheated dog-run area were built as exterior walls but with stained rough-sawn plywood for siding. Exterior windows and doors with insulated glass open into the space.

On the outside, galvanized corrugated steel for exterior siding is in keeping with my rural-Texas roots (sidebar p. 76). Durable, inexpensive, and evocative of humble, hard-working agricultural buildings, this basic siding manages to make a house look distinctive and unassuming at the same time. Before the dog run was closed in, friends commented that the house looked like a giant boxcar with the doors rolled open. The only drawback to the steel siding is the glare when the sun shines on it at just the right angle, usually early morning or late afternoon.

Separate spaces for different functions

The dog-run design works perfectly to keep room roles separate. On the east end, the first floor houses a roomy kitchen and dining room (photo right, p. 76). Windows to the dog-run area extend the room visually and let in lots of light. The second floor in this section is the master-bedroom suite (bottom photo, p. 77). Open trusses and a high ceiling give this room a spacious quality.

On the west side, the door from the dog run leads to the living-room area (photo right, p. 77). Stairs from the living room lead to my architecture office and studio on the second floor. The office has high ceilings because of the open space beneath the trusses, providing an atmosphere conducive to creative endeavors. Thanks to a sloping lot, there's a lookout basement, which is finished as a guest bedroom on this side with its own private bath-

Tarpology and a Michigan winter

Looking back, it was blind ignorance that had me align construction of my house with what turned out to be one of the worst winters Michigan had ever seen. We received 56 in. of snow before Christmas (photo below).

By the time we were ready for the first panels to be tilted into place, storms had started blowing off nearby Lake Michigan in rapid succession. Every night, we wrapped the panels and new construction to protect them both from the weather. And every morning, we unwrapped them, a process we repeated day after day, storm after snowstorm.

We tilted all the lower wall panels into place by hand, then framed the second-floor deck out of structural select Douglas-fir 2x10s. Over that, we placed clear Douglas-fir plywood topped with a layer of ¾-in. tongue-and-groove plywood decking. Because the second-floor deck was to be left exposed, it also had to be protected from weather (photo above). We began calling ourselves "tarpologists" as we polished our expertise in placing and securing the 10 big plastic tarps, a daily ritual that occurred until the roof was completed in February.



On two occasions, we required a large crane, which arrived on time (not that we were always ready). It lifted the site-built roof sections into place, the heaviest of which weighed close to 5000 lb.

The crane operations went off without a hitch despite the fact that the wind grew stronger with each lift. During the final lift of the west roof section, snow began to fall. The crane operator was incredible, as were the crew members who braved the blizzard, climbing atop the roof structure to free the lifting cables.

During this whole ordeal, my temporary quarters were a 30-ft. aluminum trailer. It was also home to my two 100-lb. black Labs, one black cat, my office equipment, and myriad construction gear.

At night, deer and turkeys left footprints all around the building site. I found turkey tracks in the sand inside the foundation walls in October before the basement slab was complete. On most mornings, the turkeys were great alarm clocks, gobbling the dogs into a frenzy of barking.

What I learned from this Arctic adventure boils down to three things. First, I most certainly would use SIPs again. Second, I would never attempt construction in the dead of a Michigan winter again. And last, I'd never live in a 30-ft. trailer again, even without the dogs.



One of the most distinctive features of this house is its steel siding. The siding looks great, and the galvanized surface should make it maintenance-free for the life of the building. Commonly used for agricultural buildings, this material is most affordable (around 52¢ per sq. ft.) when ordered in standard lengths and when the wall size requires the minimum amount of cutting and trimming labor.

I ordered the siding from a local farmers' cooperative lumberyard. For this house, we used 20-ft. and 24-ft. lengths, many of which spanned entire walls without being cut. Openings for windows, doors, and gable-end cuts were made on site. Standard galva-



nized trim and foam end seals complete the corners and window edges.

We predrilled the steel sheets for fasteners on site in layers of three to prevent deforming. Galvanized self-tapping screws with neoprene washers fasten the siding to the wall panels. Careful planning resulted in almost no seams. We caulked joints in the siding where necessary, such as around doors and windows.



room. I call this room the deer and turkey observation room because of the feathered and furry guests that frequent the yard just outside the windows.

The beauty of this design is its flexibility and versatility. The area I use as an office could be used for one or more bedrooms. In another scenario, the living room could be moved to the east side of the house; then I could put all the public spaces on one side with the more private areas on the other.

Closing in the dog run

When I moved into the house initially, the dog run was open, much the same as its southern cousins. But the harshness of Michigan winters made this strategy impractical. I ended up closing it in with insulated windows and sliding doors on the first-floor level (photo p. 74). Porch roofs over the sliding doors add a modicum of shade on sunny

days as well as a place to stand out of the rain and snow during inclement weather.

For the translucent glazing that encloses the upper walls of the dog run, I chose 10-mm-thick extruded, double-wall polycarbonate panels called Verolite (Matra-Plast Industries; 800-661-7662; www.matraplast.com).

The dog run is really the social center of the house. The same space that separates the two sides of the house also serves to unite them. The wonderfully soft light enhanced by the skylights above, especially on the north side, makes the dog run the perfect place for me to paint as well as a great place to display my paintings.

It is rare when there is no breeze blowing through the dog run, but to provide as much ventilation as possible, I may retrofit two venting skylights to enhance air circulation. I've also contemplated installing a whole-house exhaust fan in the roof.



Dog run extends the dining room.

Large windows and a glass door visually expand the spaces of this roomy, comfortable kitchen and dining room to the open dog-run area. Photo taken at C on floor plan.

On the flip side.

The opposite side of the dog run opens to a living-room area. Stairs lead to an office/studio upstairs and a finished bedroom downstairs. Photo taken at D on floor plan.



To supplement winter solar gain through the south-facing glazing, I installed a 40,000-Btu gas fireplace, but it functions more for ambience than as a heat source. In every configuration, I consider the dog-run area to be a tempered space. It was never my intention either to heat or cool the space during seasonal extremes.

Enclosing the dog run has unified the house and added an unexpected, welcome consequence. The great acoustics of the room have provided the stimulus for me to play music again. The center of attention in this house, this central space is one of those magical environments that boosts the spirit and sparks creativity. □

Bede Van Dyke is an architect, artist, and musician living and working in Holland, Mich. Photos by Roe A. Osborn, except where noted.

continued



Structure exposed. Painted roof trusses and exposed mechanicals give this master bedroom a feeling of spaciousness. Photo taken at E on floor plan.

Reader Response

Bracing with open trusses

In the article “Home and Studio Under One Roof” (*FHB* #174, pp. 72-77), I have some concerns regarding the exposed roof trusses in the building. Typically, there is a need for lateral bracing perpendicular to the trusses to eliminate buckling of the bottom chords of the trusses and to keep them in place. There was no mention of any special design for this structure, and the only brace that I observed was at the center of the span.

I agree that the open design of the space is attractive, but the need for proper bracing is still important.

—KEVIN HASKIN

TRUSS TECHNOLOGIES INC.

Cedar Springs, Mich.

Author Bede Van Dyke replies: As the architect and general contractor for the house, I may have pushed the limits on lateral bracing as far as the truss manufacturer is concerned. But the span is only 24 ft., the top and bottom chords are larger than usual (2x6), there is extensive cross-bracing in multiple bays across the structure, and double 2x6s run continuously along the top and bottom of the king post.

Additionally, fastening the SIPs to the trusses adds a great deal of rigidity, like a box, to the structure as a whole. The top chord also is enhanced with a flat, continuous 2x4 that provides a larger screwing surface for SIPs as well as adding lateral support to the trusses.

I've since designed buildings with the trusses 8 ft. on center over a span of 24 ft. I double up the trusses with a 2x4 spacer between them. These structures are braced similarly and have been checked for wind loads as high as Category D and pass.